

Comptabilité double pour système  
de retraite par répartition  
- nouvelle utilisation d'une vieille innovation italienne

# Les objectifs de la réforme

A

Obtenir un équilibre financier

B

Une meilleure transparence

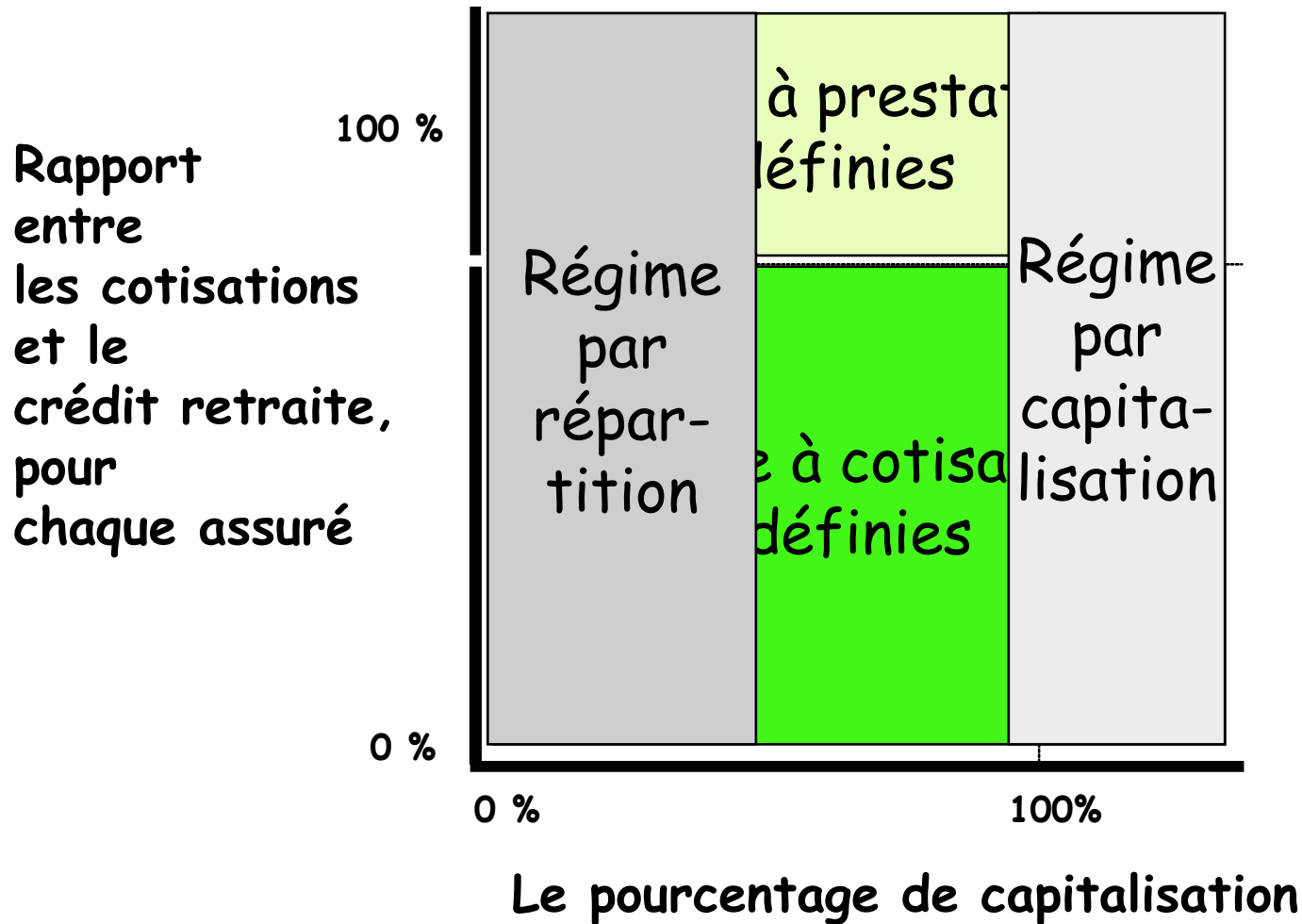
C

Une meilleure équité entre les générations

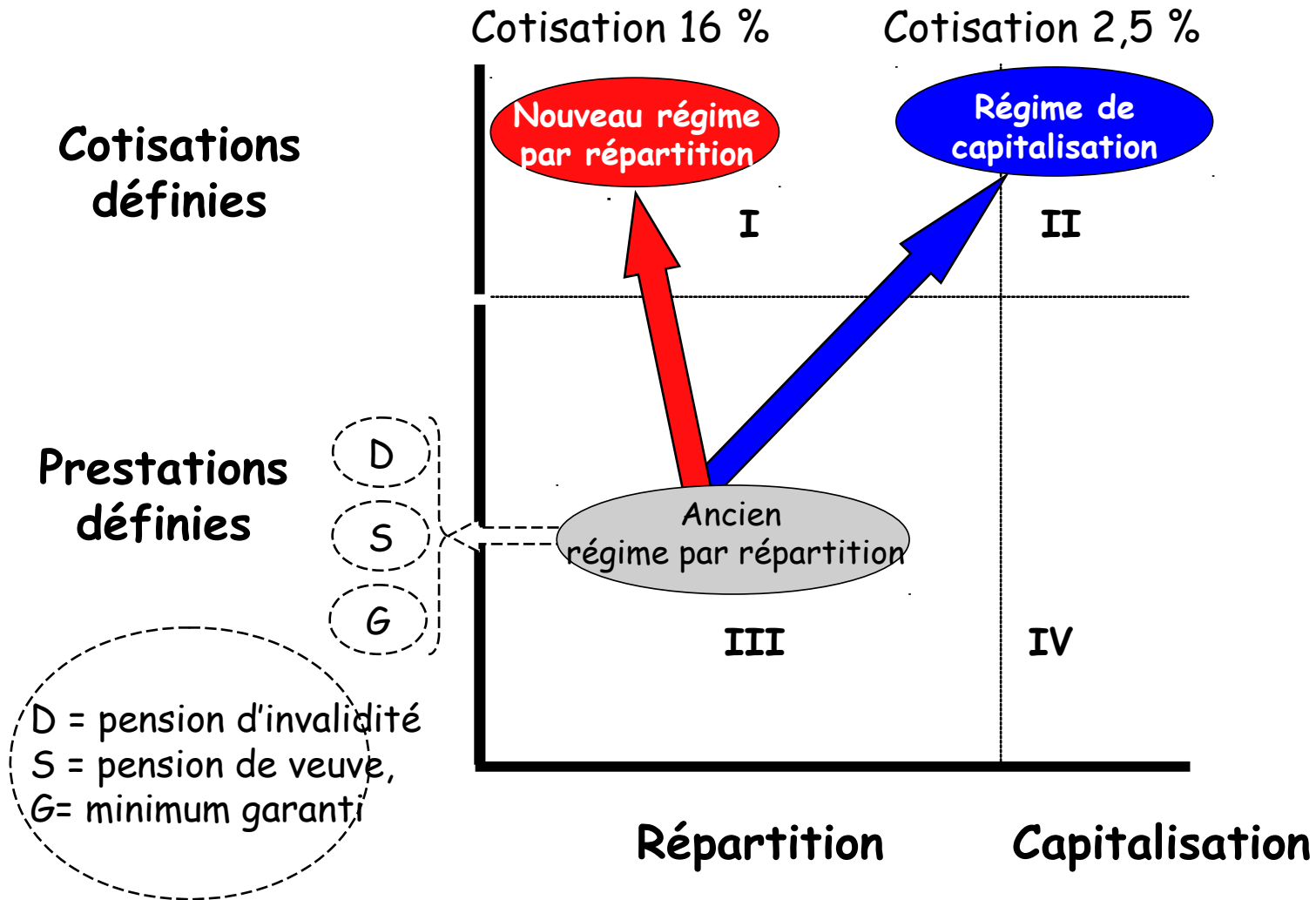
D

Garantir une pension minimum

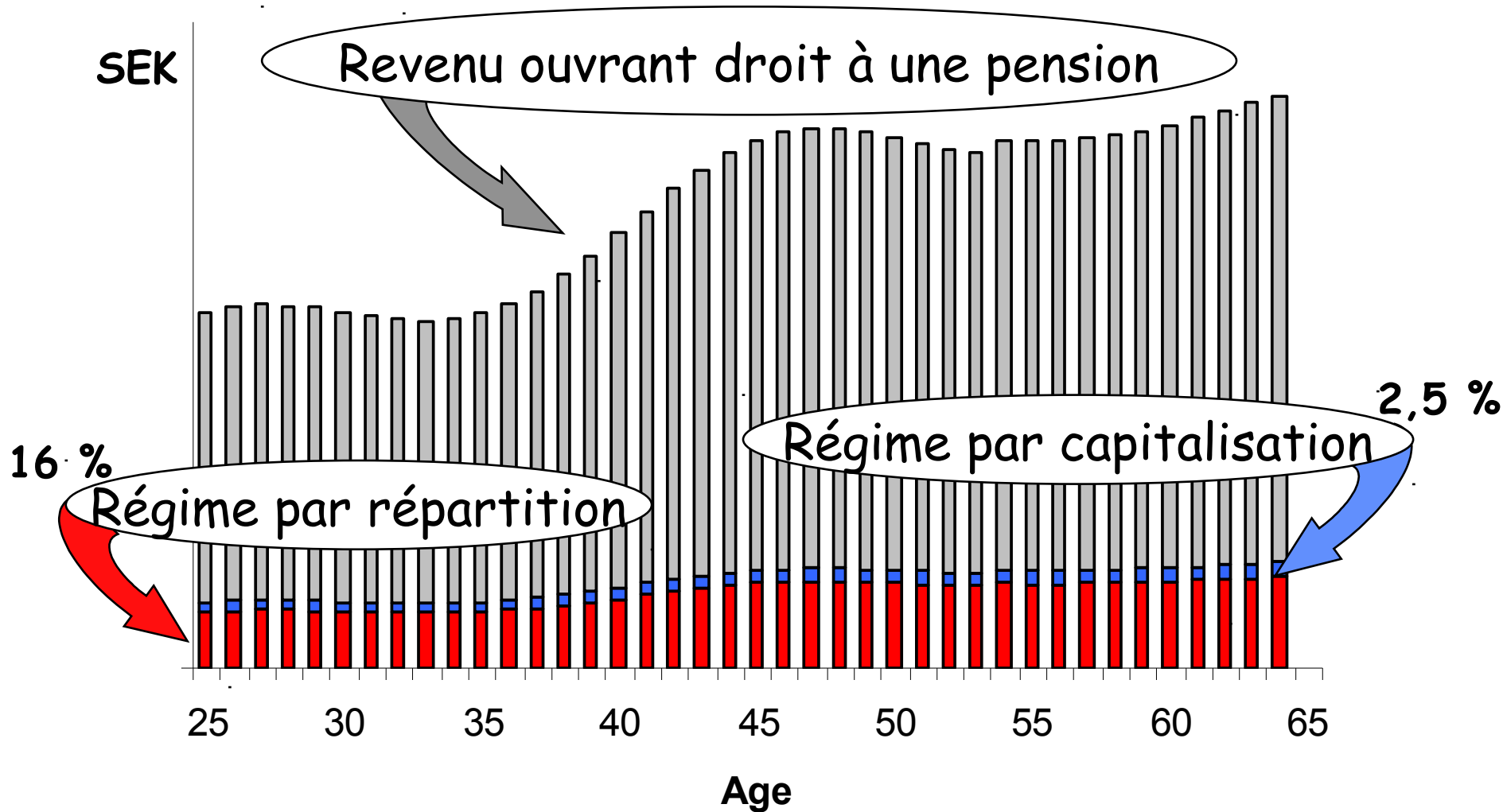
# Un menu à quatres options



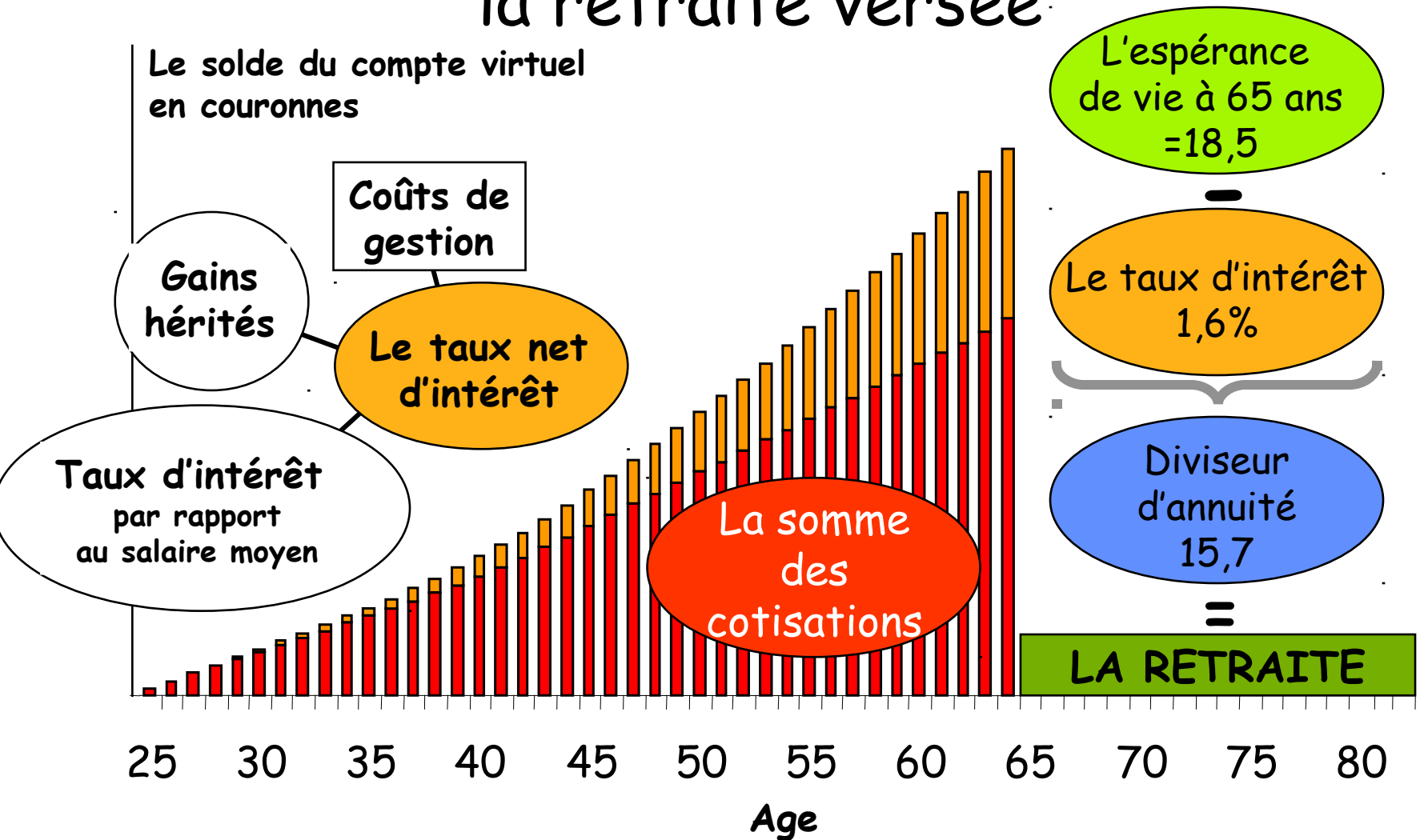
# La stratégie de la réforme suédoise



# Chaque couronne cotisée durant sa vie active correspond au même montant de crédit retraite

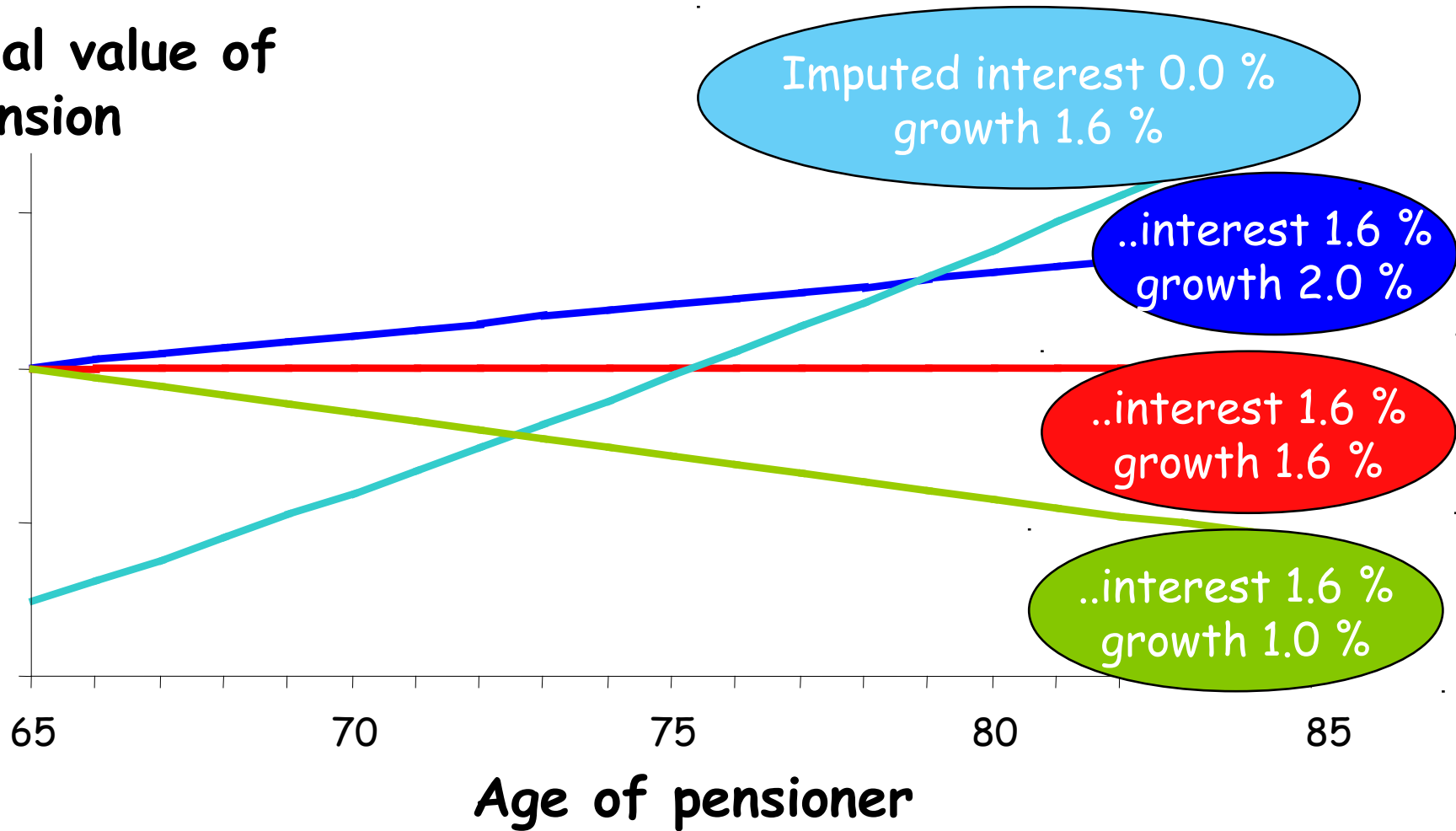


# L'évolution du compte virtuel et le calcul de la retraite versée.



# Pension as an annuity

Real value of pension



# Cinq raisons permettent au nouveau système d'assurer son équilibre économique :

- 1 Le droit à la pension correspond pour chaque assuré à ce que lui et son employeur, ou l'état, ont cotisé; ainsi il n'y a pas de droit à la pension sans cotisation et il n'y a pas de cotisation sans droit à la pension.
- 2 L'indexation « les intérêts » sur les sommes cotisées correspondent à l'augmentation du salaire moyen.
- 3 Les pensions sont calculées au moment du départ à la retraite en divisant le solde du compte virtuel un « diviseur d'annuités » qui correspond à l'espérance de vie au moment de la retraite. Ainsi une augmentation de l'espérance de vie entraîne une diminution des pensions pour chaque tranche d'âge sauf si l'on accepte de prolonger sa vie professionnelle. (page 45 dans le bilan)
- 4 L'existence des fonds assez importants d'équilibrage permet aussi la viabilité financière du système.
- 5 Le mécanisme d'équilibrage qui réduit l'intérêt des comptes virtuels autant que les pensions si le passif du système est plus important que l'actif.



**Traditional social security indicators of  
financial balance (single entry)**

**versus**

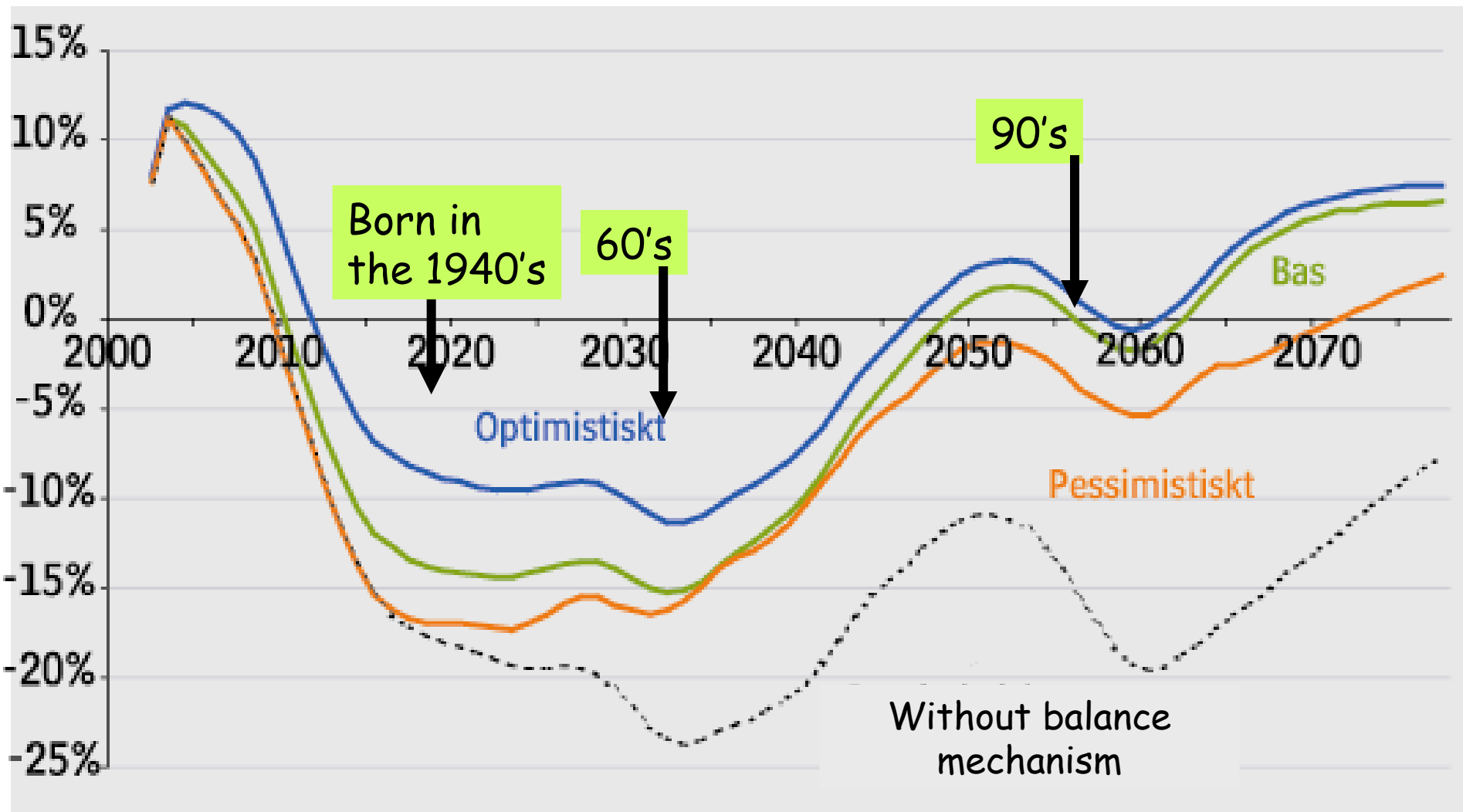
**The double entry bookkeeping  
indicators of financial balance  
developed for the  
Swedish NDC scheme**

# Traditional social security indicators of financial balance (single entry)

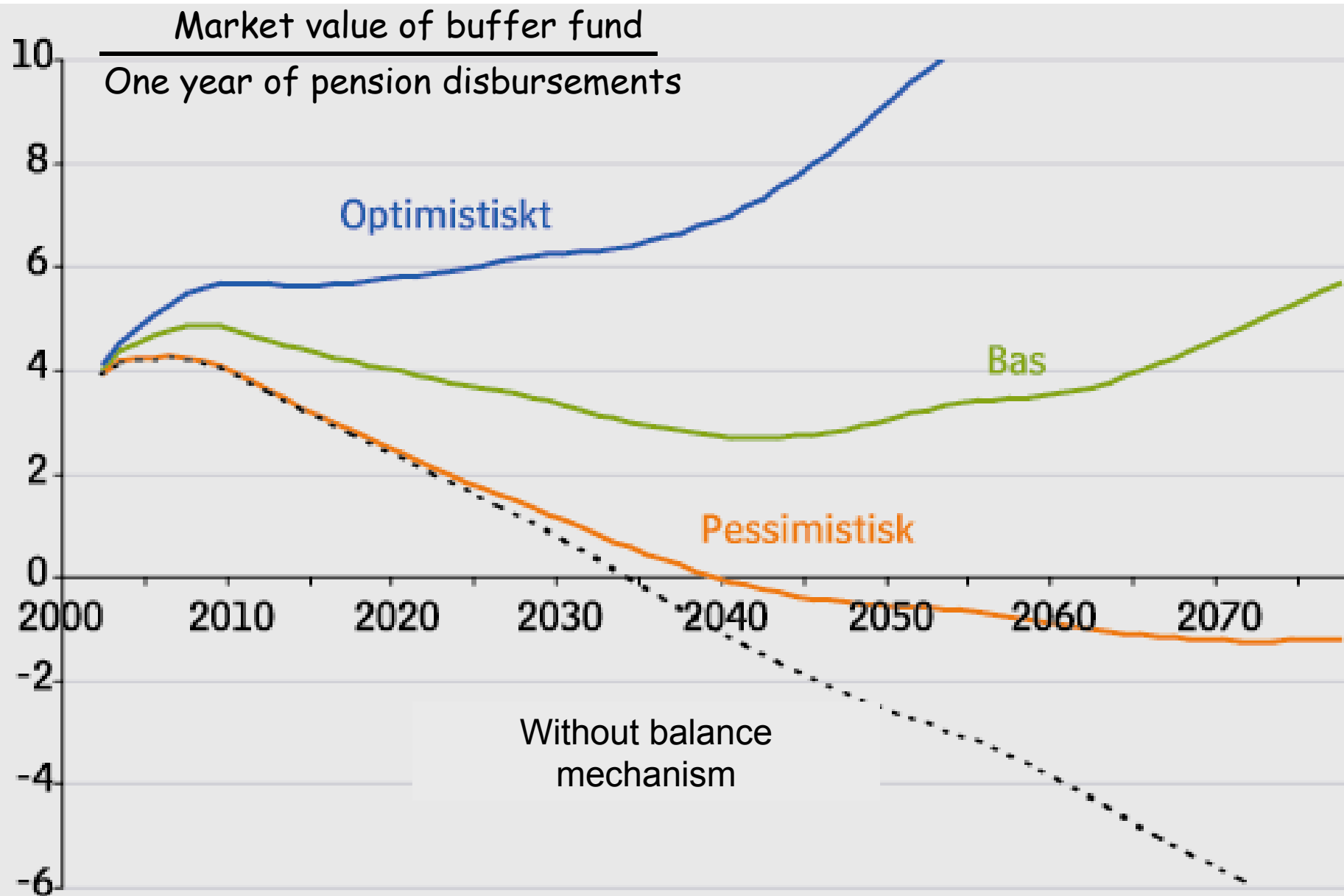
Examples from the Swedish NDC  
system:

# Simulations of net contribution 2002-2077

in percent of total contributions



# Simulations of fund ratio, 2002-2077



**The double entry bookkeeping  
indicators of financial  
balance developed for the  
Swedish NDC scheme**

# Different measures of pension liability...

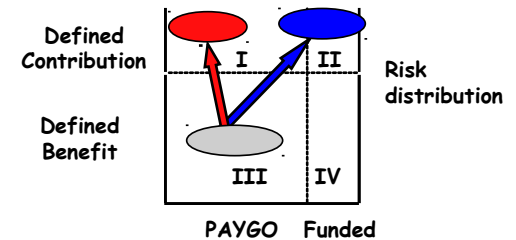
	A. Accrued- to-date	B. Current workers and pensioner's benefits	C. Open system
Which flow of pensions?	All derived from accrued rights at the time of measurement	A. + all benefits that in future will accrue for current workers	All benefits during a specified period (US = 75 years) or infinite time horizon
Which flow of contributions?	No contributions	All future contributions from current workers	All contributions during the 75 years or infinite time horizon
Comparable to conventional debt?	Yes	No (with possible exceptions)	No
Indicates financial status?	No (No assets)	No (No assets)	Yes

# Which discount factor?

- A. The expected capital market return?
- B. The expected growth in average income?
- C. The expected internal rate of return of the public pension system?

# Imagine a defined contribution pension system, i.e. a pension system where

- A. The annual pension credit = annual contribution
- B. The "return" (indexation) of pension credit & pension benefit = internal rate of return of the system



**What is the net pension liability of such a system?**

accumulated contributions  
+ accumulated return or indexation  
- accumulated paid pensions  

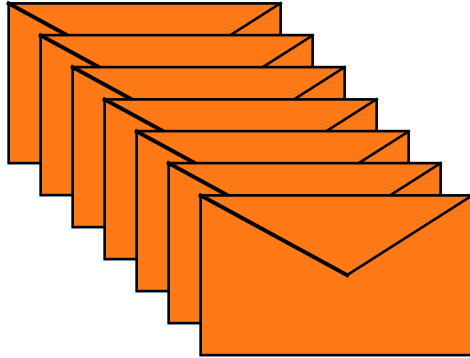
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= net pension liability

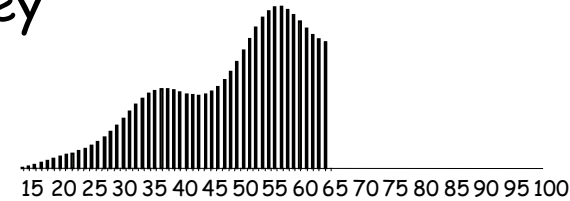


# More simply calculated as...

1.

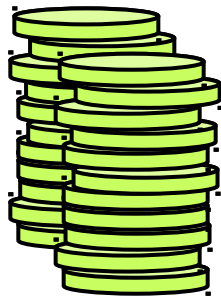


The sum of the money value of notional accounts of the active population



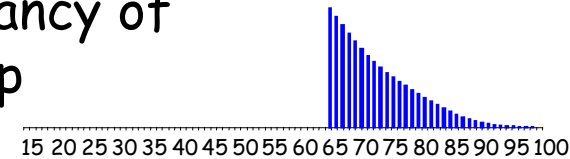
+

2.



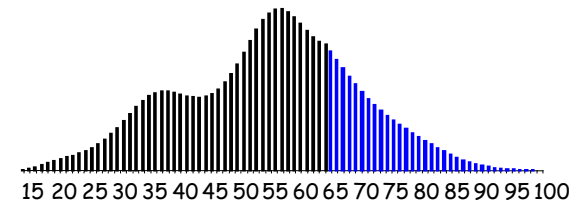
× Remaining life expectancy of each retired age group

Pension payments to each retired age group



=

Total net pension liability



# The super simple, legislated, rule for calculating the Swedish pension liability (implicitly) implies that the:

- A: relevant pension flow is that which derive from pension credits already earned at the time of measurement
- B: internal rate of return of the public pension system is the relevant discount factor.
- C: notional pension capital and pensions are indexed at the same rate as the internal rate of return of the pension system. (Which is only true if and when the automatic balance mechanism is active.)

The defined contribution design  
eliminates - **by definition** -  
the need to consider the future,  
when estimating pension liability.

Thus no projected cash flows, no  
assumed discount rate.

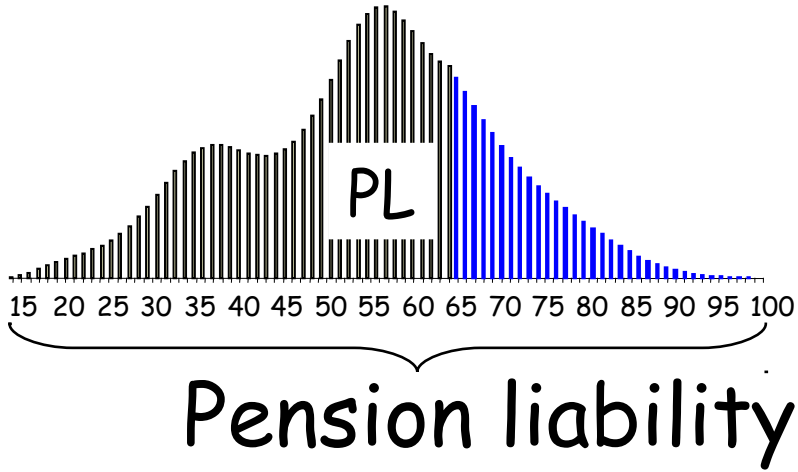
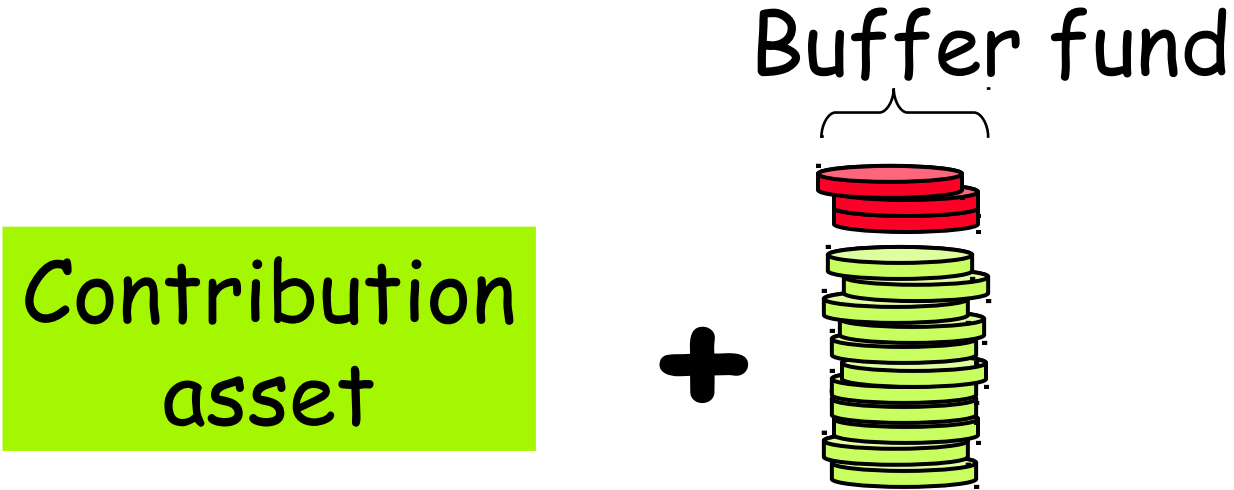
This is equally true for a (true) NDC  
scheme as for a funded DC.

**WYSIWYG**

**What You See Is What You Get**

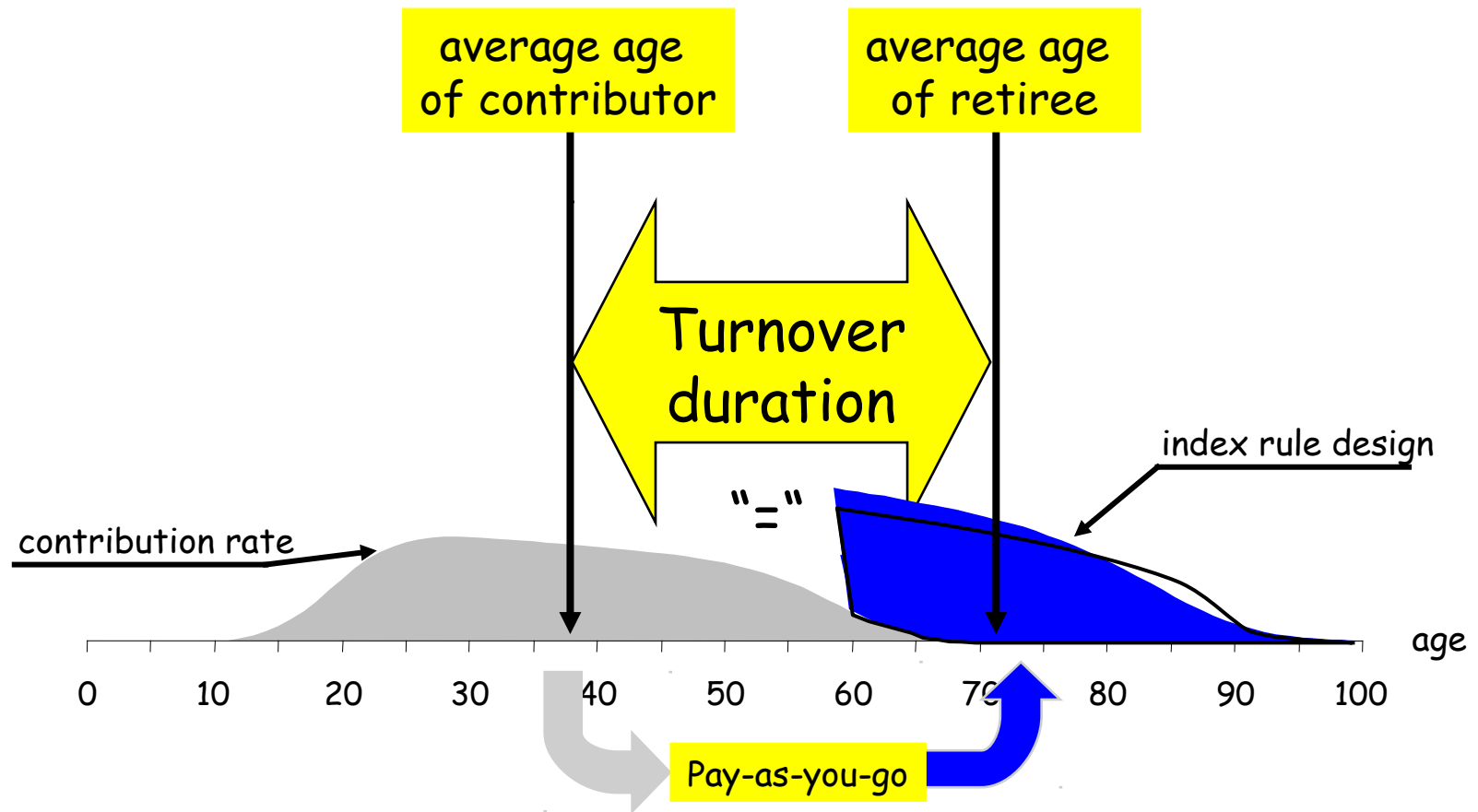
**Does a PAYG pension system have  
Assets?**

# Balance Ratio

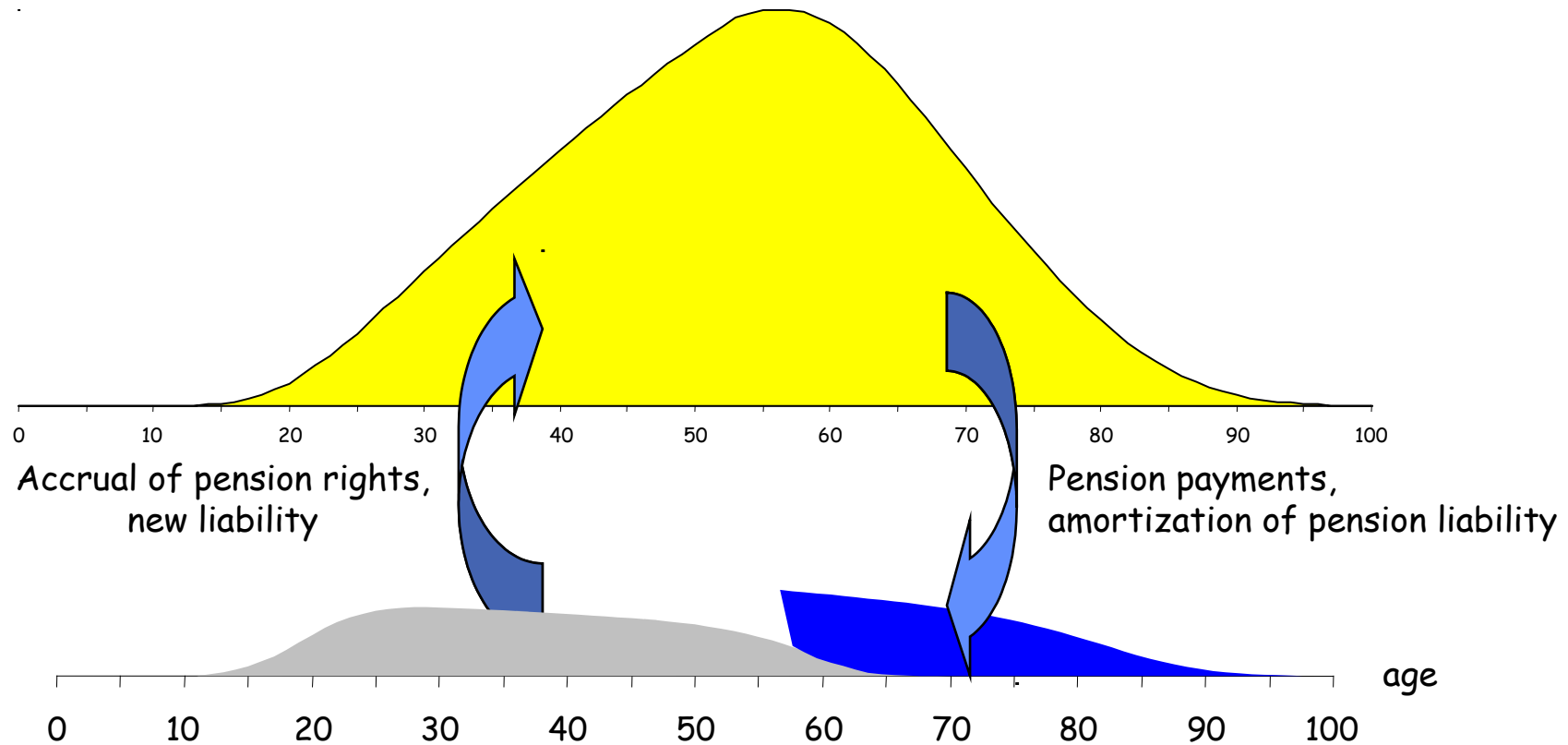


# Expected contributions & pensions

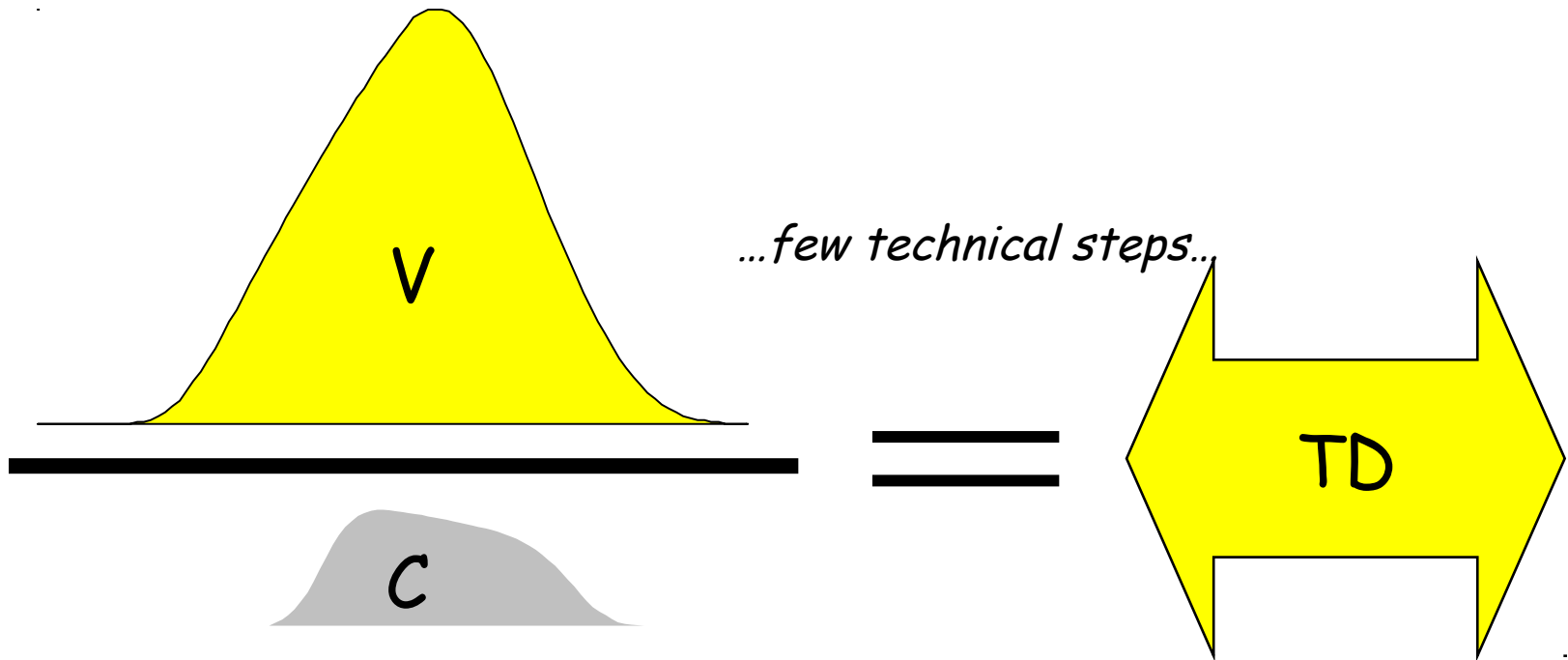
Expected, money weighted



# Expected Pension Liability



# Expected Pension Liability Expected Contributions



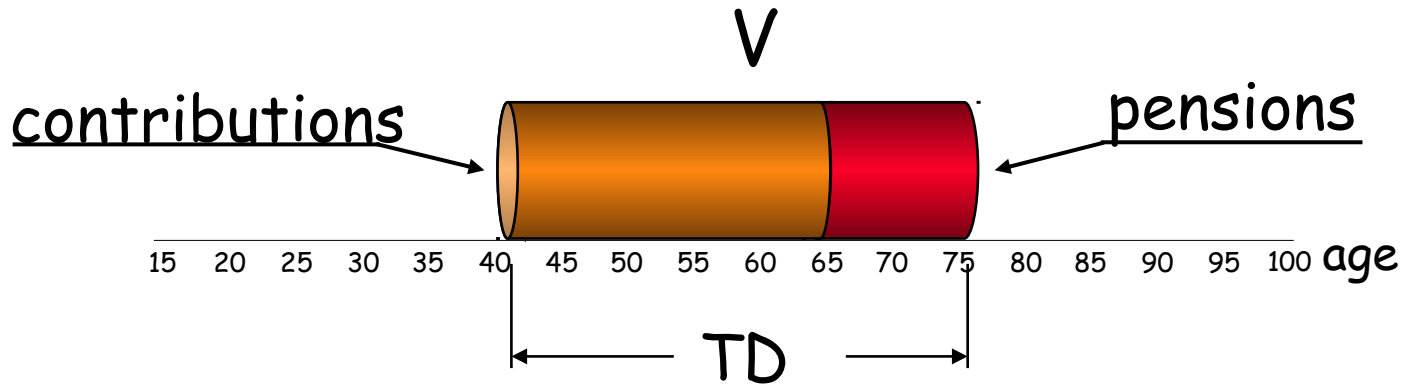


$$\frac{V}{C} = TD \Rightarrow$$

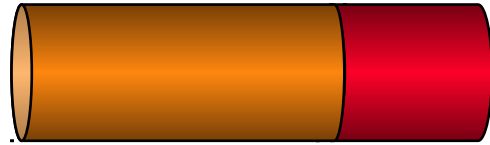
$$V = TD \times C$$

Volume

Structure

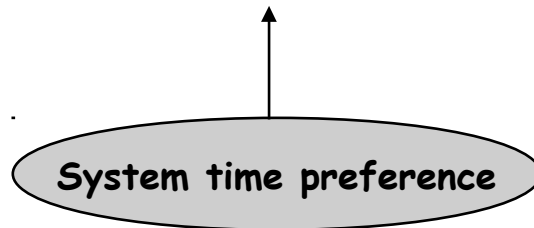


# Expected Pension Liability



Contribution asset

$$V = \frac{C}{\left(\frac{1}{TD}\right)} = PV(\text{contribution flow})$$

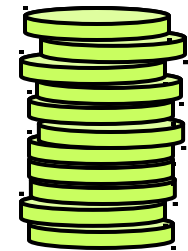
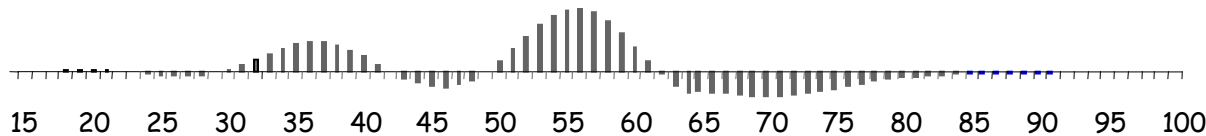
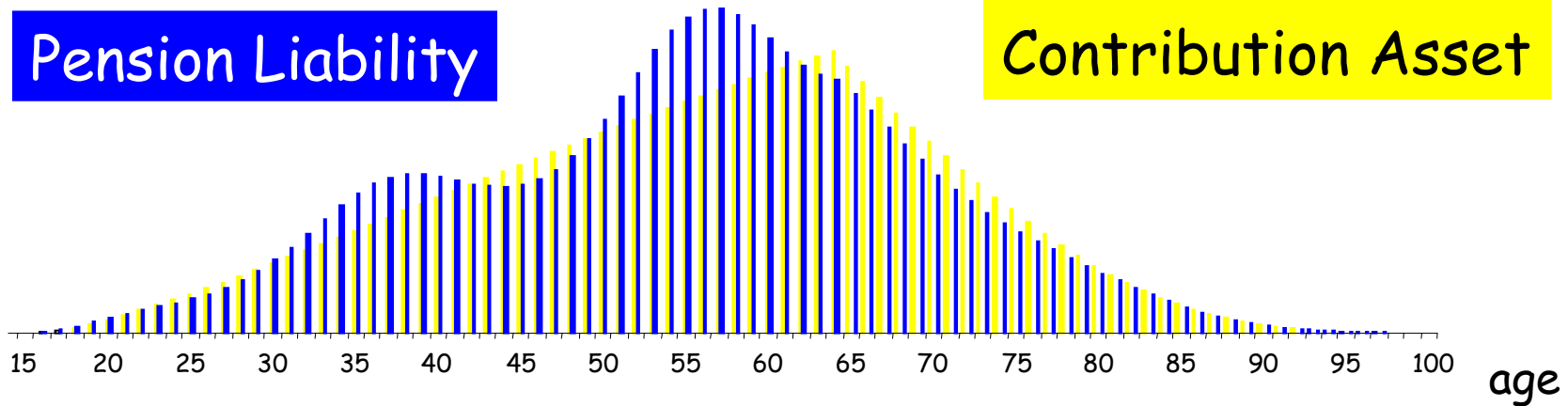


System time preference

# Pension Liability and the Fund

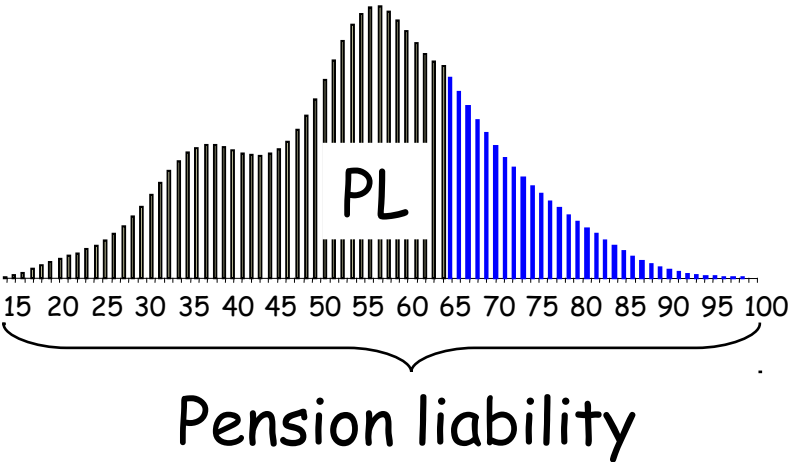
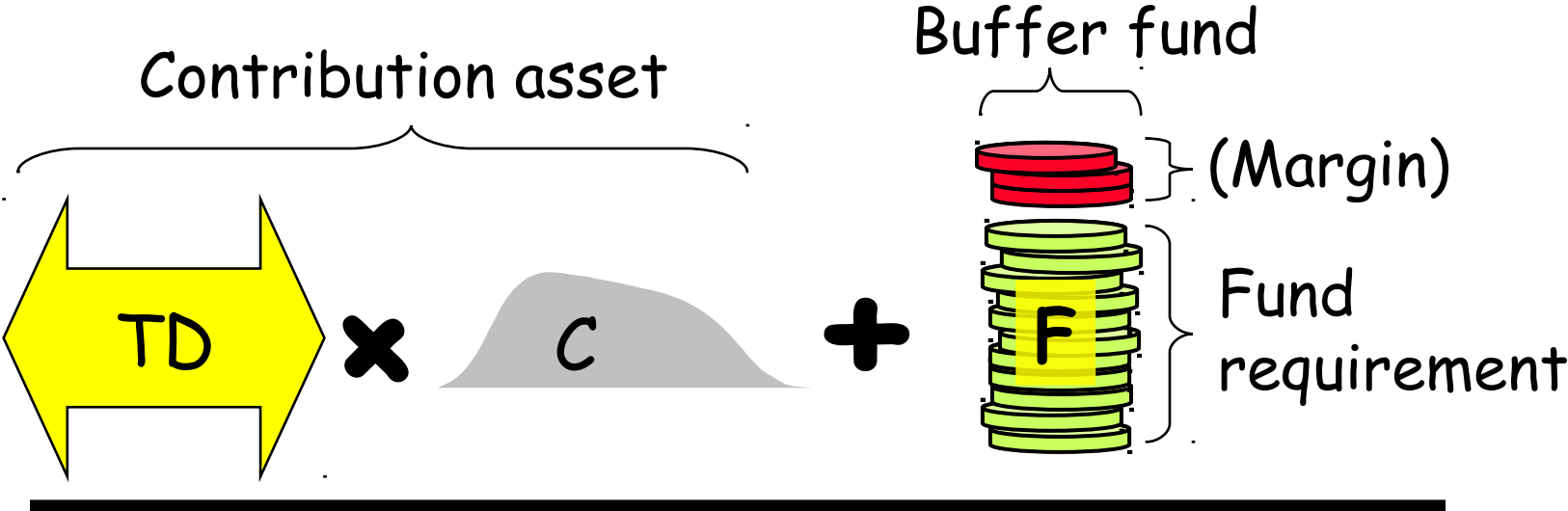
Pension Liability

Contribution Asset



Fund requirement

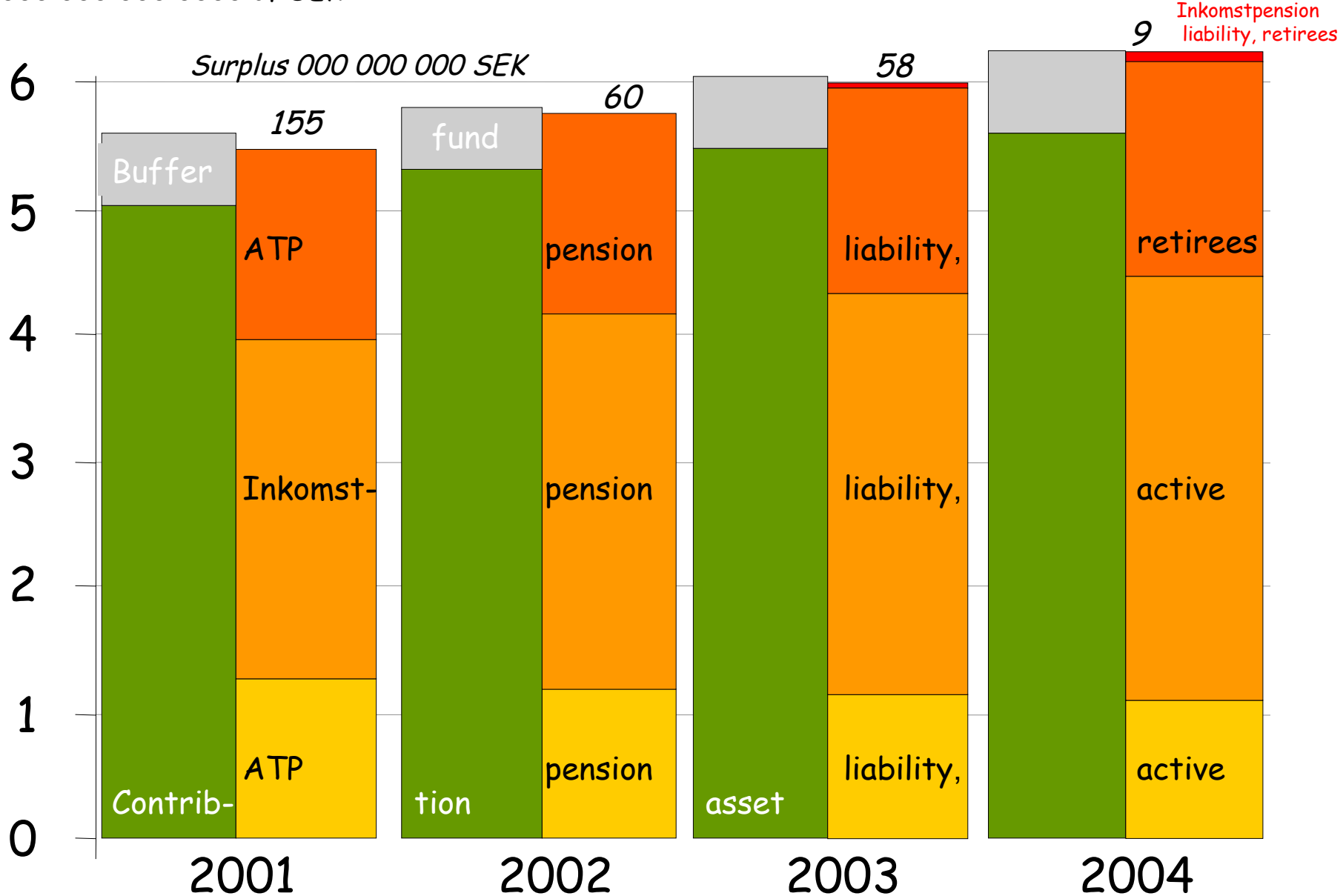
# Balance Ratio



End of theory, enter the  
Swedish practise

# The balance sheet of the *Inkomstpension*\*

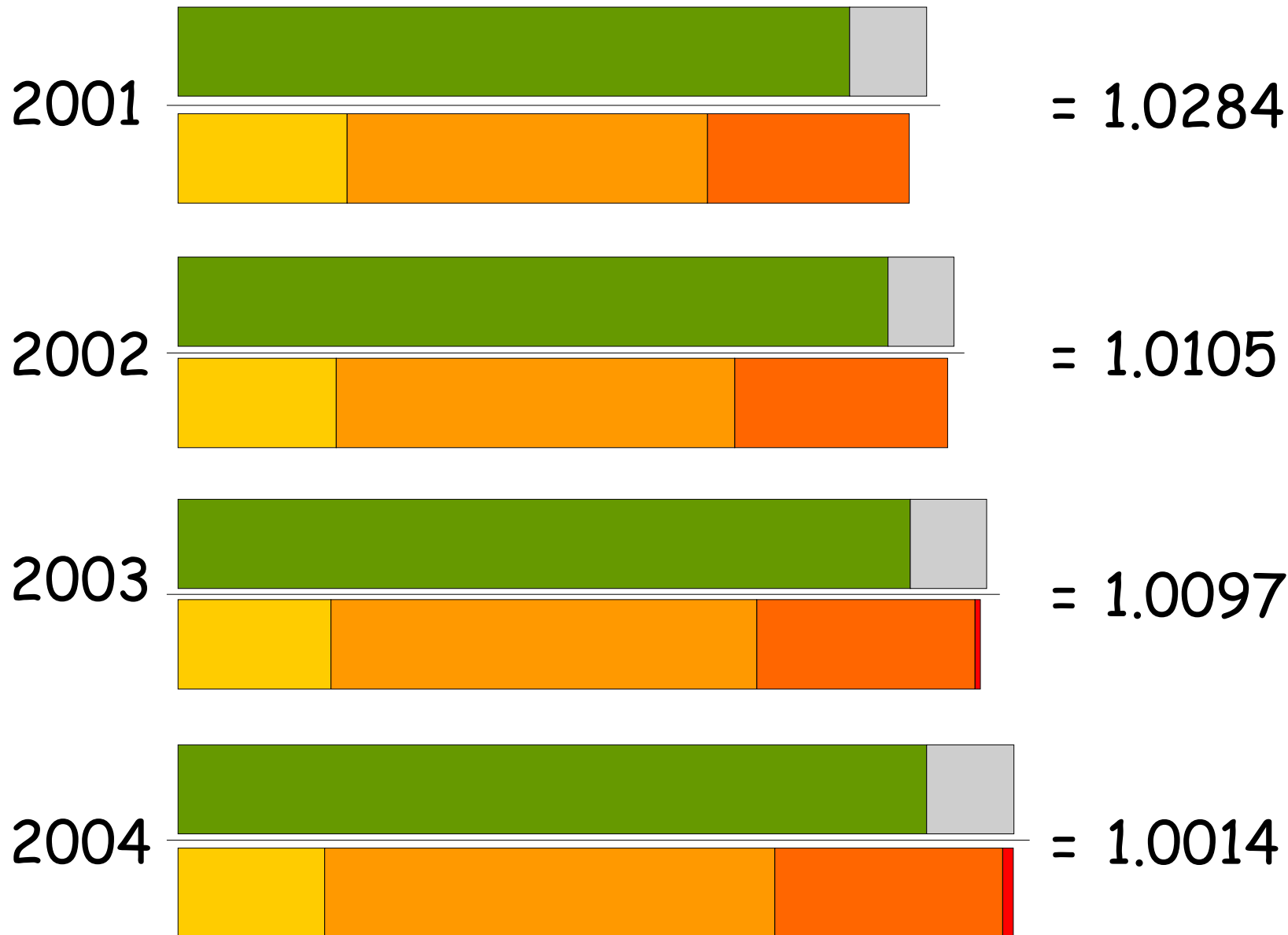
000 000 000 0000 of SEK



\* Adjusted figures  
O. Settergren 2004

# The balance ratio ...

Change in  
balance  
ratio,  
percent



# Income Statement, in percent of GDP

	2004	2003	2002	2001
<i>GDP, millions of SEK (1 Euro » 9 SEK)</i>	<i>2,542,850</i>	<i>2,438,447</i>	<i>2,352,938</i>	<i>2,269,149</i>
<b>Change in funded assets</b>				
Pension contributions	6.7	6.8	6.8	6.9
Pension disbursements	-6.4	-6.4	-6.4	-6.3
Return on funded capital	2.6	3.4	-3.6	-1.1
Costs of administration	-0.1	-0.1	-0.1	-0.1
<i>Total change in funded capital (a)</i>	<i>2.7</i>	<i>3.7</i>	<i>-3.3</i>	<i>-0.6</i>
<b>Change in contribution asset</b>				
Value of change in contribution revenue	5.6	6.6	9.5	17.9
Value of change in turnover duration	0.0	0.5	-0.7	0.7
<i>Total change in contribution asset (b)</i>	<i>5.6</i>	<i>7.1</i>	<i>8.8</i>	<i>18.6</i>
<b>Change in pension liability</b>				
New Pension credits and ATP points	-9.6	-7.1	-7.1	-6.1
Pension disbursements	6.4	6.4	6.4	6.3
Indexation	-6.4	-9.4	-11.7	-5.1
Value of change in life-expectancy	-0.7	-0.5	-0.3	-0.8
Inheritance gains arising	0.3	0.3	0.3	0.2
Inheritance gains distributed	-0.3	-0.3	-0.3	-0.2
Deduction for costs of administration	0.1	0.1	0.1	0.0
<i>Total change in pension liability (c)</i>	<i>-10.2</i>	<i>-10.5</i>	<i>-12.6</i>	<i>-5.7</i>
<b>Net income/ -loss (a)+(b)+(c)</b>	<b>-1.9</b>	<b>0.3</b>	<b>-7.1</b>	<b>12.3</b>



# Balance sheet in percent of GDP

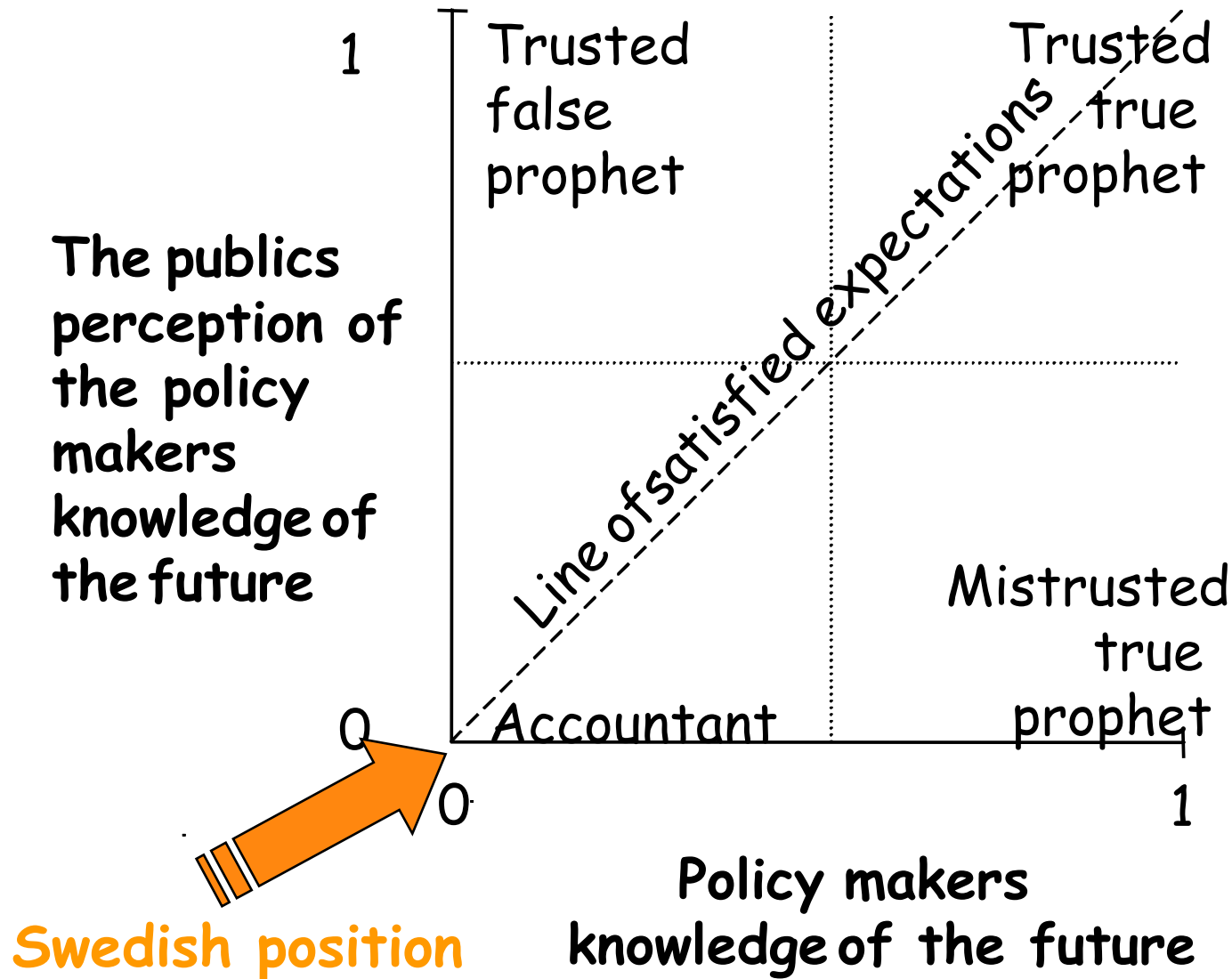
	Dec. 31 2004	Dec. 31 2003	Dec. 31 2002	Dec. 31 2001
<b>Assets</b>				
National Pension Funds	25.4	23.7	20.7	24.9
Contribution asset	220.5	224.1	224.9	224.1
<i>Total assets</i>	<i>245.9</i>	<i>247.8</i>	<i>245.6</i>	<i>249.0</i>
<b>Liabilities and surplus</b>				
Opening surplus/-deficit	2.3	2.1	9.3	-2.7
Net income/-loss for the year	-1.9	0.3	-7.1	12.3
Total (closing) surplus/-deficit	0.3	2.4	2.2	9.6
Pension liability	245.6	245.2	244.0	239.7
<i>Total liabilities and surplus</i>	<i>245.9</i>	<i>247.8</i>	<i>245.6</i>	<i>249.0</i>

# Remember the different measures of pension liability?

	A. Accrued- to-date	B. Current workers and pensioners's benefits	C. Open system
Which flow of pensions?	All derived from accrued rights at the time of measurement	A. + all benefits that in future will accrue for current workers	All benefits during a specified period (US = 75 years) or infinite time horizon
Which flow of contributions?	No contributions	All future contributions from current workers	All contributions during the 75 years or infinite time horizon
Comparable to conventional debt?	Yes	No (with possible exceptions)	No
Indicates financial status?	<del>No (No assets)</del>	<del>No (No assets)</del>	Yes
	<b>Yes, assets can be estimated by Turnover Duration x Contributions</b>		

**Does measures matter?**

# Four stylised policy makers - which one are you?



Swedish position

# Fin

For more information, please read the  
Swedish Pension System Annual Report 2004  
[www.forsakringskassan.se/sprak/eng/publications](http://www.forsakringskassan.se/sprak/eng/publications)

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